


# 3DAOI

AUTOMATED OPTICAL INSPECTION

## TR7700QH SII SERIES

-  Ultra-High-Speed 3D Inspection, up to 80 cm<sup>2</sup>/sec
-  Powered by AI-Algorithms and Smart Programming
-  Metrology-grade Inspection, Precise Measurements

21 / 15  
MP /  $\mu$ m  
Large FOV

3D  
3D Height Range  
up to 40 mm

Real Time SPC  
Trends



# TR7700QH SII S



## Ultra-High-Speed 3D Inspection

Achieve maximum performance and improve your productivity with TRI's Ultra-High Speed 3D AOI TR7700QH SII Series. Combining a broad spectrum of algorithms with increased mechanical capabilities, the 3D AOI platform delivers incredible speed with uncompromised Gauge R&R.



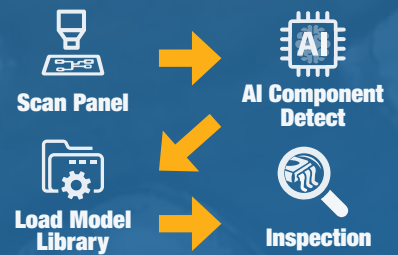
**80 cm<sup>2</sup>/s**  
40% Speed Improvement

By increasing the throughput and reducing the inspection time, the cost per component is drastically reduced, particularly beneficial in high volume production where even small reductions in cost can lead to significant savings.



## AI Smart Programming

TRI's AI Smart Programming allows for easy setup of inspections without the need for a CAD file. The advanced model library helps improve the accuracy and efficiency of the inspection process. The AI Smart Programming is a valuable tool for improving manufacturing processes and getting products to market faster.



## Metrology Measurements

The Metrology module allows users to easily measure & create formula(s) with dimensional measurements and inspection parameters. The TR7700QH SII delivers data-driven Inspection with remarkable measurable real-time feedback for continuous yield-rate improvement.



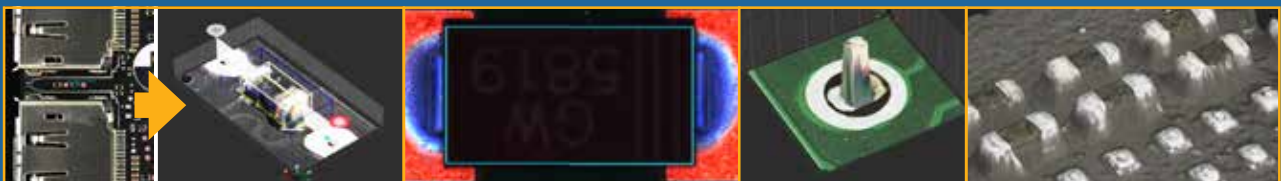
Whole Board 3D Data  
Flatness measurement



Linear Measurements  
between Components

## Smart Defect Detection with Advanced Inspection Algorithms

The TR7700QH SII is powered by IPC-610 compliant algorithms and equipped with the latest imaging technology. Interactive 3D models help operators quickly review found defects, such as lifted BGA components, IC leads, connectors, switches and other mounted devices for enhanced post-reflow inspection.

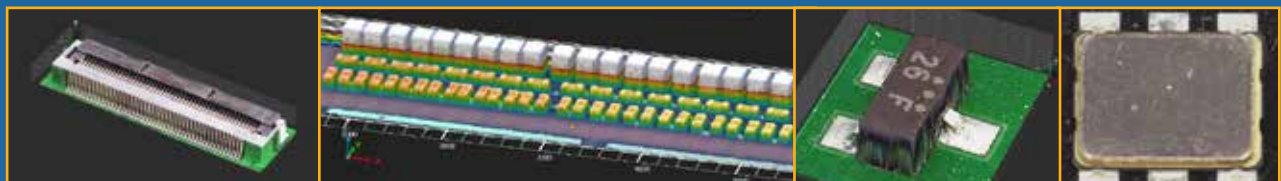


0402 Component

Black Component Inspection

PIN Inspection

0201 Inspection



ECU Connector

Large FOV Inspection

SOT Inspection

Reflective Surfaces

# ERIES

## High Volume Production Inspection

Designed for high-throughput production, the Ultra-High-Speed 3D AOI is suitable for the automotive electronics industry and telecommunication electronics industry. The TR7700QH SII delivers precise metrology measurements and advanced full coverage inspection for the large and high density boards of these industries.



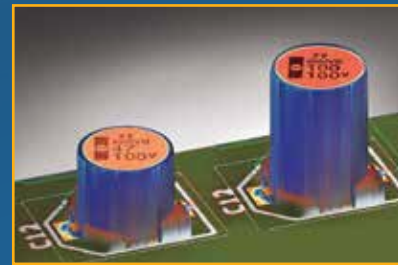
Automotive Industry – Large Boards



Telecommunications Industry – Server Boards

## Tall Component Inspection

The 3D AOI features the Multi-Step Function, which enables efficient inspection of components with different heights, including tall components measuring up to 40 mm.



## Foreign Material Detection

Reduce false calls and perform no escape inspections with the foreign inspection detection functionality. TRI's Optical Inspection solutions auto learns the PCB design to identify the extra components, solder balls, fibers, and any other foreign object, thus eliminating these defects.



Foreign Object Detection

## AI-Powered Inspection

Boost your production's intelligence with TRI's AI-powered Inspection solutions. TRI offers an array of specialized defect detection AI algorithms, AI Training Tools, AI Servers and a Smart Repair Station.

### / AI Station /

Performs AI-powered Inspection, Supports multiple AOI at the same time, reducing AI hardware cost, by sharing the GPU resources.



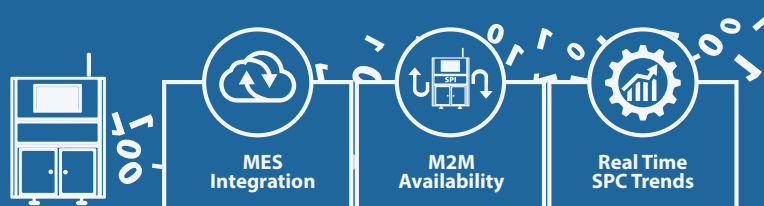
### / AI Verify Host /

The AI Verify Host is a Smart Repair Station that reduces the need for manual re-inspection and lowers operational costs.



## Smart Factory Ready

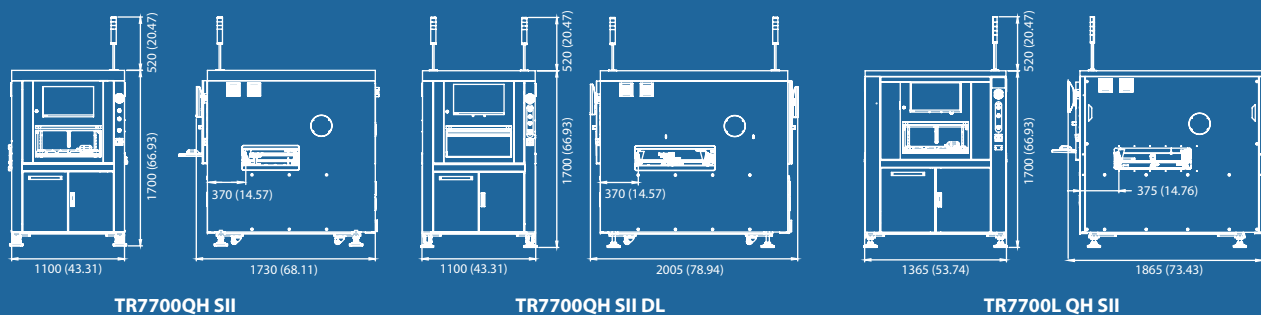
TRI's Smart Factory Solutions promote full traceability and data exchange by generating Big Data for your MES Applications, which is essential for optimizing your production's yield rate, enabling the Connected Factory. TRI's solutions comply with Industry 4.0 standards like the IPC-Hermes-9852, the IPC-DPMX, and the Connected Factory Exchange (IPC-CFX).



Model		TR7700QH SII	TR7700QH SII DL	TR7700L QH SII
Imaging System	High Speed Camera	21 MP		
	Optical Resolution	15 $\mu$ m		
	Inspection Speed	80 cm <sup>2</sup> /sec		
	Max. 3D Height Range	40 mm (1.57 in.)		
	3D Technology Lighting	Quad Digital Fringe Projectors Multi-phase True Color LED		
Pre-/Post-Reflow Inspection Functions	Component Defects	Missing, Tombstoning, Billboarding, Polarity, Rotation, Shift, Wrong Marking (OCV), Defective, Upside Down, Extra Component, Foreign Material, Lifted Component		
	Solder Joint Defects	Solder Fillet Height, Solder Volume %, Excess Solder, Insufficient Solder, Bridging, Through-hole Pins, Lifted Lead, Golden Finger Scratch/ Contamination		
X-Y-Z Axis Control		Ballscrew + AC Servo with Motion Controller		
X-Y-Z Axis Resolution		1 $\mu$ m		
Inspect Performance (on Calibration Target)	Height Repeatability	3 $\sigma$ <5 $\mu$ m		
	Height Accuracy	+/- 6 $\mu$ m		
Min PCB Size		50 x 50 mm (1.97 x 1.97 in.)		
Max PCB Size		510 x 460 mm (20.08 x 18.11 in.)	510 x 310 mm (20.08 x 12.20 in.) x 2 lanes	765 x 610 mm (30.12 x 24.02 in.)
			510 x 590 mm (20.08 x 23.23 in.) x 1 lane	
PCB Thickness		0.6 - 5 mm (0.02 - 0.20 in.)		
PCB Transport Height <sup>(1)</sup>		880 - 920 mm (34.65 - 36.22 in.) Optional: 945 - 965 mm		880 - 920 mm (34.65 - 36.22 in.) Optional: 930 - 970 mm
Max PCB Weight		3 kg (6.61 lb). Optional: 5 kg (11.02 lb)		3 kg (6.61 lb) Optional: 5 kg (11.02 lb)/12 kg (26.46 lb)
PCB Carrier / Fixing		Step Motor Driven		
Clearance	Top	50 mm (1.97 in.)		
	Bottom	40 mm (1.57 in.)		
	Edge	3 mm (0.12 in.). Optional: 4 mm (0.16 in.) / 5 mm (0.20 in.)		3 mm (0.12 in.). Optional: 5 mm (0.20 in.)
Weight	920 kg (2028.25 lb)	1020 kg (2,248.72 lb)	1035 kg (2,281.78 lb)	
Power Requirement		200 - 240 VAC, single phase, 50 / 60 Hz, 3 kVA		
Air Requirement		72 psi - 87 psi (5 - 6 bar)		
Optional	Features	Barcode Scanner, Repair Station, Offline Editor, OCR, Yield Management System (YMS 4.0), Support Pin, Synchro Drive, AI Solutions (GPU Upgrade as Needed), Metrology Module (AOM)		
	3D Technologies	3D Laser Module (Available for TR7700QH SII.)		

(1) Optional: 940-965 mm (SMEMA compatible)

Unit: mm (in.)



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